

P11141PC00

22

September 19, 2001

NEW CLAIMS

1. A method for determining a flow pattern of a fluid in a space, wherein:
- a fluid is passed via at least one inlet into the space, wherein
- 5 - in a first position, at a distance from the at least one inlet, a first sensor (15) is provided with which in at least three fixed points spaced apart along a line a parameter of said fluid is measured in at least part of the fluid stream for determining a parameter distribution;
- determining, on the basis of the measured distribution, at least in
- 10 respect of the measured parameter, the location of the maximum or minimum value of the relevant parameter on said line; and
- determining, on the basis of at least the position of this maximum or minimum value, the flow pattern in the space.
2. A method according to claim 1, wherein at least in or near the or
- 15 each inlet the fluid throughput is measured.
3. A method according to claim 1 of 2, wherein in or near the at least one inlet the inflow direction of the fluid is determined.
4. A method according to any one of the preceding claims, wherein in or near the at least one inlet the relevant parameter of the fluid is
- 20 measured, wherein preferably, moreover, at a distance from the fluid stream a comparable parameter in the space is determined.
5. A method according to any one of the preceding claims, wherein in the fluid stream in said first position at least three recording elements (T₁, T₂, T₃) for the relevant parameter are arranged at a distance from each
- 25 other, in particular above each other, for measuring the local value of the relevant parameter, wherein on the basis of the value differences the

P11141PC00

23

September 19, 2001

position of the maximum or minimum value in said first position is determined.

6. A method according to any one of the preceding claims, wherein said fluid parameter is measured contactlessly, preferably acoustically.

5 7. A method according to any one of the preceding claims, wherein in at least two positions placed one after the other in the flow direction of the fluid stream the distribution, at any rate at least two values, are measured.

8. A method according to any one of the preceding claims, wherein on the basis of at least the flow pattern of the fluid stream the throughput of
10 the at least one inlet is regulated and/or the direction of inflow of the fluid into, at least from the at least one inlet is regulated and/or at any rate a part of the fluid stream is passed from the space via at least one outlet, wherein in, at any rate near the at least one outlet the relevant parameter of the fluid stream and preferably also the throughput and/or the
15 composition thereof is measured.

9. A method according to any one of the preceding claims, wherein as fluid a gas is passed into a space and wherein as parameter at least one of the following parameters is measured:

20 temperature, flow velocity, flow direction,
pressure, concentration of a component, density.

10. A method according to claims 9, wherein the gas is passed into a space substantially filled with gas.

11. A method according to claim 9, wherein the gas is passed into a space substantially filled with liquid or suspension.

25 12. A method according to any one of the preceding claims, wherein as fluid a liquid is passed into a space and wherein as parameter is measured at least one of the following parameters is measured:

temperature, flow velocity, flow direction,
pressure, concentration, density.

P11141PC00

24

September 19, 2001

13. A method according to claim 12, wherein the liquid is passed into a space substantially filled with liquid.

14. An apparatus for determining a flow pattern of a fluid in a space, comprising:

- 5 - at least one first sensor (15), which first sensor (15) is provided with at least three recording elements (T_1 , T_2 , T_3) for measuring a parameter in at least three points spaced apart along a line; and
- a process unit to which the values of the parameter measured in said points can be passed;

- 10 - wherein said process unit is provided with an algorithm for determining, during use, on the basis of at least the measured values the position of the maximum or minimum value of the relevant parameter in the fluid stream at the level of the said relevant first measuring device and, at least partly on the basis thereof, determining the flow pattern.

- 15 15. An apparatus according to claim 14, wherein at least each first sensor is arranged for contactlessly measuring said parameter, preferably acoustically.

16. An apparatus according to claim 14 or 15, wherein the or each first sensor comprises at least three recording elements for the relevant
- 20 parameter placed at a mutually known distance, such that the recording elements are placeable for use substantially along a straight or curved line in the fluid stream, while a preferably regular pattern of recording elements in a space can be obtained with a series of first sensors.

17. An apparatus according to any one of claims 14-16, wherein a
- 25 series of first sensors is arranged to measure said parameter in at least two and preferably at least three positions on a straight or curved line, such that a preferably regular pattern of recordings can be obtained with said series first sensors.

18. An apparatus according to any one of claims 14-17, wherein at
- 30 least the or each first sensor the process unit and fluid inlet regulating

P11141PC00

25

September 19, 2001

means and/or fluid outlet regulating means are incorporated into a regulating cycle, in which during use the fluid inlet regulating means and/or fluid outlet regulating means provide data with respect to the fluid stream, which data are processed by the process unit, such that at least partly on
5 the basis of these data the fluid inlet regulating means and/or fluid outlet regulating means are regulated.

19. An apparatus according to any one of claims 14-18, wherein the recording elements at least comprise temperature recording elements.

20. A space, provided with an apparatus according to any one of claims
10 14-19, wherein a preferably regular pattern of at least first sensors is provided, in particular recording elements thereof in at least a part of the space between at least one fluid inlet and at least one fluid outlet.

21. A space according to claim 20, wherein the at least one fluid inlet is provided relatively high in the space.

15